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Turneraceae describing new species in *Piriqueta* (2) and *Turnera* (3) from South America.—H. F. WERNHAM (Jour. Bot. 51:320-324. 1913) under "New Rubiaceae from Tropical America III" has published 10 new species.—Ö. WINGE (Arkiv för Botanik 12: no. 9. pp. 1-39. pls. 1-13. 1913) under the title "Cytological studies in the Plasmodiophoraceae" includes a description of a new genus and species (*Sorodiscus Callitrichis* Lagerh. and Winge) found on stems of *Callitrichis vernalis*.—H. W. WOLLENWEBER (Phytopathology 3: 197-242. pls. 20-22. 1913) characterizes a new genus (*Cylindrocarpon*) based on *Nectria cucurbitula* (Tode) Fries.—N. WORONICHIN (Monit. Jard. Bot. Tiflis, Livr. 28. pp. 16-25. 1913) has published several new species of parasitic fungi including a new genus (*Echinosporium*) found on leaves of *Acer Pseudoplatanus* L. in the Caucasus region.—K. YENDO (Nyt Mag. f. Naturv. 51:275-288. pls. 13, 14. 1913) under the title "Some new algae from Japan" describes and illustrates a new genus and species of parasitic alga, namely *Benzaitenia yenoshimensis*. The same author (Trav. Mus. Bot. and Acad. Imp. Sci. St. Pétersbourg 10:114-121. 1913) presents a discussion of *Haplosiphon filiformis* Rupr. and proposes a new genus (*Ruprechiella*), based on a part of RUPRECHT'S material in the Herbarium of the Academy of Science in St. Petersburg.—J. M. GREENMAN.

**Tree growth.**—Measuring the growth in height of over 40 specimens of *Pinus ponderosa* for the five years of 1909-1913, and attempting to correlate these increments with the precipitation during the growing period, KIRKWOOD<sup>7</sup> concludes that the amount of growth is determined principally by the moisture conditions of the preceding growing season. This he shows to be directly in harmony with the fact that the time of increase in height and thickness in trees is limited to the first few weeks of the growing season. His quantitative data seem to warrant such a conclusion, at least for regions of limited rainfall, where the seasons of maximum precipitation would approach most nearly to the optimum requirements of the tree.

Investigations of a somewhat similar nature by JACCARD<sup>8</sup> include observations upon a small number of individuals of several different species during the growing seasons of 1911 and 1912. The former was the warmer, drier year, and showed a greater increase in thickness in three examples compared with six examples exhibiting the greater increment in the latter year. He also shows that the period in which most of the increase in size is accomplished is during the first half of the season, or moi. exactly from May until the middle of July. He makes no attempt to trace the connection between the growth of one season with the weather conditions of the previous year.

<sup>7</sup> KIRKWOOD, J. E., The influence of the preceding growing season on the growth of the yellow pine. *Torreya* 14:115-125. 1914.

<sup>8</sup> JACCARD, P., Accroissement en épaisseur de quelques conifères en 1911-1912. *Jour. Forestier Suisse*, nos. 6, 7, 8. pp. 1-20. 1913.

In a more extensive investigation, KAPTEYN<sup>9</sup> regards it important that the data of tree growth, to be reliable, should be from trees in rather extensive forests, well situated with respect to subsoil water, and where the conditions over considerable areas are uniform. His own data were derived from annual ring measurements of oaks taken from the forests along the rivers Main, Moselle, and Rhine, and include the increments for the past two centuries. During this period the fluctuations in growth rate showed parallel variations in the three forests, and these variations correlated with meteorological records lead him to the conclusions that: (1) the very considerable fluctuations in the yearly growth of the oaks in the forests under consideration must, in large part, be due to meteorological influences; (2) temperature has had a very small influence; (3) the rainfall of the spring and summer is the factor of the most importance, but its influence may be different for different kinds of trees; (4) increased growth seems to be caused by a greater supply of subsoil water rather than by any more direct action of greater precipitation; (5) for at least the last 70 years of the period there was but a single growth ring produced each year; (6) there appears to be a rather constant periodicity of 12.4 years in the rate of growth of these trees, and a comparison with some specimens of *Sequoia* from California would indicate a similar periodicity in their annual increment.

All these papers are suggestive rather than conclusive in their results, and indicate the importance of more extensive data before very definite conclusions can be reached.—GEO. D. FULLER.

**First-generation maize hybrids.**—COLLINS<sup>10</sup> has described a method of comparing the yield of first-generation hybrids between distinct varieties of maize with the yield of the parent varieties. The principal difficulties with methods heretofore in use are thought to have arisen from failure to appreciate (1) the importance of individual diversity in such hybrids as well as in the parent varieties, (2) the abnormal behavior of self-pollinated maize plants, and (3) the necessity of securing for the comparison hybrids and parents of identical ancestry. Briefly, the method suggested for obtaining the material for comparison is to select two plants, 1 and 2, from each of two varieties, *A* and *B*, and by hand-pollination to make the four combinations represented by  $A_1 \times A_2$ ,  $A_2 \times B_1$ ,  $B_1 \times B_2$ , and  $B_2 \times A_1$ , resulting in one cross-pollinated ear of each variety and two ears representing the hybrid between the varieties. The reviewer does not doubt that, if a considerable number of these sets of four ears were similarly obtained, the method would afford an accurate means of comparing the yields of maize varieties as they exist with the yields of first-generation crosses between these varieties, and that it should therefore be of

<sup>9</sup> KAPTEYN, J. C., Tree growth and meteorological factors. Rec. Trav. Bot. Néerland. 11:70-93. 1914.

<sup>10</sup> COLLINS, G. N., A more accurate method of comparing first-generation maize hybrids with their parents. Jour. Agric. Research 3:85-91. 1914.